

## CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

### **The marginal status of the CAD/BIM technician: a case study in an engineering consultancy**

The rapid use in Building Information Modelling (BIM) has led to a corresponding surge in demand for competent Computer Aided Design (CAD) or BIM technicians, with the demand for these skills continuing to outstrip supply. Although the merits and adoption of BIM are well recorded, challenges with its implementation are also recognised. However, no significant research has been carried out into CAD/BIM technicians since BIM's implementation as common industry practice. This study seeks to understand more about this profession's engagement levels as the available literature on its superset, the engineering technician, identifies the profession as marginalised.

The author proposes that a differentiating characteristic of CAD/BIM technicians is their education level, which is lower on average to the rest of the workforce in engineering consultancies. For this reason, this study explores how education level influences staff's engagement levels. It does this by researching the association between type of professional and education level.

A five-point Likert scale engagement questionnaire was sent to all staff within a sector of an Architecture Engineering Construction (AEC) UK Civil Infrastructure organisation, with information also obtained on the individuals educational background and profession. Non-parametric analysis of the Likert data was undertaken to establish what areas of engagement had statistically significant differences between the education groups. SPSS statistical software was used to perform variance and logistic regression analysis to better understand the relationship between variables.

A statistically significant lower engagement score was found for those with a lower education level on multiple questions. This was most apparent on questions relating to Inclusion and Training and Development. Many challenges faced by engineering technicians in the historical literature review are supported by the results for the CAD/BIM technicians in this study. The literature supports the view that CAD/BIM technician's status has not changed over time in the engineering consultancy environment. The survey highlights the strong relationship between CAD/BIM technicians, education level and certain engagement scores, as well as the associated position in the organisational hierarchy. The results indicate that those with an in-depth knowledge of the position have less opportunity to influence the strategic decision making regarding the discipline.

The recommendation from the research is that engineering consultancies recognise education level as a potential discrimination point, and review some of the inherent work practices and divides which have existed since the creation of engineering consultancies. The digital age of construction engineering has arrived and the industry needs to reimagine and recreate the teams required to deliver today's engineering products and models. This means changes to recruitment strategy, changes to behaviours and a deeper value being placed on the digital technology and its users by the whole team, regardless of education level, social background or any other differentiating characteristic.

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